Remarks/Arguments

There are no amendments to the specification and the drawings.

In the Claims, Claims 1-34 are pending. Claims 11-18 and 24-34 are withdrawn. Claims 19-23 were previously cancelled, without prejudice. Claims 1-10 are rejected. Claims 1 and 6 are amended herein. Entry of the amendments and reconsideration are respectfully requested.

I. Statement of the Substance of an Interview with the Examiner

A telephone interview was conducted on November 18, 2005 between Ernest Karlsen (hereinafter 'Examiner') and the undersigned, J. Michael Johnson, Agent for Applicant. Claims 1-10 were discussed along with prior art cited by the Examiner including Wan et al., U.S. Patent No. 6,667,682 (hereinafter 'Wan et al.'), Bridges, U.S. Patent No. 4,448,078 (hereinafter 'Bridges'), Kaplan, U.S. Patent No. 2,836,791 (hereinafter 'Kaplan'), and Garshelis, U.S. Patent No. 6,490,934 (hereinafter 'Garshelis').

During the telephone interview, an Office Action mailed September 20, 2005 (hereinafter 'Present Action') was broadly discussed. In particular, a rejection of Claims 1-10 under 35 U.S.C. 112, second paragraph, was discussed. Mr. Johnson questioned the Examiner's rationale for the rejection. The Examiner insisted that without a multiplexer, use of a verb "multiplexed" in independent Claims 1 and 6, was "functional language" and that there was no claim structure to support such function. Once Claims 1 and 6 were explained to the Examiner, Mr. Johnson requested that the Examiner provide suggested amendments to the claims to overcome the rejection. The Examiner offered no suggestions to address his concerns regarding the claims. No options for overcoming the rejection were agreed to by the interview participants.

Mr. Johnson further questioned the Examiner regarding a new ground for rejection of Claims 1-10 under 35 U.S.C. 103(a) as being unpatentable over Wan et al. in view of Bridges, Kaplan and Garshelis. Mr. Johnson requested that the Examiner specifically identify in the references all of the elements and/or limitations recited in the rejected claims. The Examiner declined. Mr. Johnson further noted that Bridges does not disclose magnetic field measurement contrary to the Examiner's contention.

In a follow-up phone call placed by the Examiner on November 18, 2005, the Examiner admitted that the reference to 'magnetic field' with respect to Bridges had been a typographical error. According to the Examiner, the Present Action should have stated, "Bridges show multiplexing between temperature and strain measurements", since Bridges discloses a resistive strain gauge that measures strain.

Finally, Mr. Johnson pointed out to the Examiner that an election pursuant to a restriction requirement of a previous Office Action had been made without traverse. In the Present Action, the Examiner mistakenly stated that Applicant had "timely traversed the restriction (election) requirement".

II. Remarks/Arguments Regarding Present Office Action

The Examiner acknowledged Applicant's election of Invention I (corresponding to Claims 1-10). However, as noted above, the Examiner incorrectly characterized the election as having been "timely traversed in a reply filed on September 28, 2004 [*sic*]". To correct the record, Applicant respectfully submits that the reply was filed September 28, ***2005***, and the election of Invention I (corresponding to Claims 1-10) relative to Invention II (corresponding to Claims 24-34) was ***without traverse***.

The Examiner rejected Claims 1-10 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner contended, "[i]t is still not clear what is being claimed in claims 1 and 6". The Examiner presumed that element 210 of Figure 3 was the "current sensor" and contended, "[e]lement 210 has no multiplex function thus the language related to 'multiplexed' is considered functional and claims 1 and 6 do not claim structure to support such function". Dependent Claims 2-5 and 7-10 were similarly rejected.

Applicant traverses the Examiner's rejection of Claims 1-10 under 35 U.S.C. 112, second paragraph, and submits that the claims in question meet both the letter and intent of 35 U.S.C. 112, second paragraph. In particular, Claims 1-10 particularly point out and distinctly claim the subject matter which Applicant regards as his invention. Applicant further submits that the Examiner's rejection of Claims 1-10 is respectfully defective and based on a misinterpretation of both Applicant's specification and the requirements under 35 U.S.C. 112, second paragraph.

Applicant respectfully points out that both Claim 1 and Claim 6 are directed to a "dual-purpose sensor" that may determine or measure "both a current flowing adjacent to the sensor and a temperature in a vicinity of the sensor" (Applicant's specification, Page 3, lines 10-11). Claim 1 recites, in part, "[a] dual purpose sensor comprising: a magnetoresistive current sensor ...; and a conductor adjacent to the magnetoresistive current sensor ...", while Claim 6 recites, in part, "[a] dual purpose sensor comprising: a magnetoresistive current sensor ...; and a current flowing adjacent to the magnetoresistive current sensor ...". As such, the Examiner's focus on Figure 3 and element 210 is misplaced, since element 210 is clearly identified as "a magnetoresistive (MR) current sensor 210". As such, element 210 represent only a portion of an embodiment of the dual-purpose sensor recited in Claims 1 and 6.

Furthermore, the Examiner contention, "[e]lement 210 has no multiplex function thus the language related to 'multiplexed' is considered functional and claims 1 and 6 do not claim structure to support such function", is respectfully without merit. It is well established that functional language is accepted practice in claim drafting. As noted in the MPEP,

> "A functional limitation [or functional language] is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).
>
> A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step." MPEP, Section 2173.05(g).

It is respectfully submitted that there is no requirement under 35 U.S.C. 112 to provide structure to "support" a functional limitation, as erroneously implied by the Examiner. As such, the Examiner's reliance on "multiplexed" in rejecting Claims 1-10 under 35 U.S.C. 112, second paragraph, is improper.

While Applicant firmly believes that the extant claim language in Claims 1 and 6 meets the statutory requirements under 35 U.S.C. 112, second paragraph, Applicant has amended herein Claims 1 and 6 in an attempt to further clarify the subject matter thereof. In particular, Applicant has removed reference to "multiplexed" in both Claims 1 and 6. Support for the amendments is found at least in Claims 1 and 6 as previously presented and the Applicant's specification and claims as originally filed. No new matter is added. Applicant respectfully requests entry and consideration of amended Claims 1 and 6.

In light of the amendments hereinabove, Applicant request reconsideration and withdrawal of the rejection of Claims 1-10 under 35 U.S.C. 112, second paragraph. In particular, Applicant respectfully submits that removal of "multiplexed" by the amendment herein renders moot the Examiner's rejection of independent Claims 1 and 6.

The Examiner rejected Claims 1-10 under 35 U.S.C. 103(a) as being unpatentable over Wan et al. in view of Bridges, Kaplan and Garshelis. In particular, the Examiner contended, "Wan et al show a magnetoresistive device that is used to measure magnetic fields and temperature ... but does not show multiplexing between temperature and magnetic field measurements and ... measurement of current"; "Bridges shows multiplexing between temperature and magnetic field [*corrected to read:* strain] measurements"; "Kaplan shows the equivalence of current and magnetic field measurements"; and "Garshelis shows that strain gages [*sic*], as in Bridges, and magnetoresistive elements, as in Wan et al, share common features such as change of resistance due to external effects and temperature dependence". The Examiner concluded that it would have been obvious to "have adapted the multiplexing technique of Bridges to the apparatus of Wan et al ... because one of ordinary skill in the art would realize that so doing would lead to a simpler and more economic structure".

Applicant respectfully traverses the rejection under 35 U.S.C. 103(a) on the grounds that the Examiner failed to establish and properly support a *prima facie* case of obviousness with respect to Wan et al., Bridges, Kaplan, and Garshelis (hereinafter 'the references'). Specifically, the Examiner does not show with respect to the rejected claims one or more of 1) "some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings"; 2) "a reasonable expectation of success" in modifying or combining the teachings of the references; and 3) that the prior art references "teach or suggest all the claim limitations", as required by the courts. MPEP, Section 2142, *Establishing a Prima Facie Case of Obviousness*. Moreover, the Examiner failed to establish that the teaching or suggestion to make the claimed combination and the reasonable expectation of success are both "found in the prior art, and **not** based on applicant's disclosure". *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991) (***emphasis*** added). In short, the Examiner's reasons for rejecting Claims 1-10 respectfully fail to meet even the minimum requirements necessary for establishing and maintaining *prima facie* obviousness with respect to the references.

As is clearly stated in the MPEP, "[o]bviousness can ***only*** be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation ***to do so*** found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art" (***emphasis*** added). MPEP §2143.01 *Suggestion or Motivation to Modify the References*. As reasoned by the Federal Circuit,

> "When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See e.g., McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] reference," a question of fact drawing on the Graham factors).
>
> "The factual inquiry whether to combine references must be thorough and searching." Id. It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with. See, e.g., Brown & Williamson Tobacco Corp. v. Philip Morris Inc., 229 F.3d 1120, 1124-25, 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) ('a showing of a suggestion, teaching, or motivation to combine the prior art is an 'essential component of an obviousness holding'") (quoting C.R. Bard, Inc., v. M3 Systems, Inc., 157 F.3d 1340, 1352 48 USPQ2d 1225, 1232 (Fed. Cir. 1998))". *In re Sang Su Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002).

Additionally, according to the Federal Circuit, " 'teachings of references can be combined only if there is some suggestion or incentive to do so' "(emphasis in original). *In re Fine*, 837, F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ

929, 933 (Fed. Cir. 1984). "[E]ven when the level of skill in the art is high, the Board [or the Examiner] must identify specifically the principle, known to one of ordinary skill, ***which suggests the claimed combination***. In other words, the Board [or the Examiner] must ***explain the reasons*** one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious" (***emphasis*** added). *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998).

Thus, a motivation to combine is an ***essential element*** in establishing *prima facie* obviousness. For a motivation to be legitimate, there ***must be a finding*** that a 'teaching, suggestion, or motivation' to combine ***exists***. There ***must be objective evidence of record*** from the prior art in light of the motivation both to support the Examiner's selection of the particular references and to support combining the elements or teaching thereof as proposed by the Examiner. The Examiner ***is required*** by way of reasoned explanation ***to specifically identify the principle*** known by the skilled artisan '***that suggests the claimed combination***'. The Examiner may not simply dispense with providing such evidence and reasoning in presenting the motivation to combine.

Moreover, "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art ***also suggests the desirability*** of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)" (***emphasis*** added). MPEP §2143.01, cited *supra*. For a motivation to combine/modify to be legitimate and therefore, be employed to support a *prima facie* case of obviousness, there must be "evidence that 'a skilled artisan, ***confronted with the same problems as the inventor*** and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed'". *Ecolochem, Inc. v. Southern Calif. Edison Co.*, 227 F.3d 1361, 1375, 56 USPQ2d 1065, 1075 (Fed. Cir. 2000) (quoting *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998)) (***emphasis*** is added). Therefore, in addition to providing evidence from the prior art to support selecting and combining, the Examiner is ***required*** to establish and provide ***evidence*** to support the ***desirability*** of the combination in light of the ***problem or problems*** that faced ***the inventor***.

Regarding Wan et al., Bridges, Kaplan, and Garshelis, the Examiner merely states without evidentiary support that one of ordinary skill would be motivated to combine the references because such a skilled artisan, "would realize that so doing would lead to a simpler and more economic structure" (hereinafter 'Examiner's motivation'). However, the Examiner has not and respectfully cannot point to any portion of the respective disclosures of Wan et al., Bridges, Kaplan, and Garshelis wherein such a motivation is explicitly expressed. Thus, the Examiner's motivation to combine/modify the references is clearly not found 'in the references themselves'.

Furthermore, the Examiner provided ***no extrinsic evidence to support*** a contention that a teaching, suggestion, or motivation ***not found explicitly*** in the cited references was ***either present implicitly*** in that taught by the references (which in this instance, clearly it is not) ***or*** was ***in the knowledge generally available to one of ordinary skill in the art***. Specifically, ***the Examiner cited nothing*** (i.e., no extrinsic evidence) beyond the references themselves in support of the Examiner's motivation. Therefore, the Examiner ***is not*** relying on implicit teachings or general knowledge of the skilled artisan. As such, the Examiner respectfully cannot contend that the Examiner's motivation regarding combining the references are "found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art", as required by the courts to support *prima facie* obviousness. *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

In addition, the Examiner's motivation lacks that necessary to qualify as a legitimate or supported motivation to combine/modify according to the courts. In particular, the Examiner offered no explanation regarding how the proposed motivation would lead the skilled artisan to select and combine the references as relied upon by the Examiner for the subject rejection. No explanation is presented regarding "the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them [thereby rendering] the claimed invention obvious". *In re Rouffet*, cited *supra*. In short, the Examiner's motivation fails to address ***why*** a skilled artisan, ***without*** knowledge or benefit of Applicant's teachings, would make the ***specific choice*** to combine Wan et al., Bridges, Kaplan and Garshelis as opposed to some other combination of references. In addition, the Examiner's motivation provides no insight into why one skilled in the art would have found it obvious to make the particular and specific modification of the relevant teachings of Wan et al., Bridges, Kaplan and Garshelis that the Examiner suggests. Thus, the Examiner's motivation fails to address why the skilled artisan would have been motivated to combine/modify Wan et al., Bridges, Kaplan and Garshelis.

Moreover, the Examiner failed to establish, or for that matter, even attempt to establish, that the prior art or the skilled artisan with ***no knowledge of the claimed invention*** would have: (a) recognized the desirability of the combination/modification proposed by the Examiner, or (b) selected the specific elements from the cited prior art references for combination/modification, as suggested by the Examiner, when confronted with the same problem faced by the inventor. In fact, the Examiner did not explicitly or implicitly consider the problem(s) faced by the inventor as motivation for the combination/modification proposed by the Examiner. Similarly, the Examiner has not identified specifically the principle of or explained the reasons why the skilled artisan would have been motivated to select and combine the references. *In re Rouffet*, cited *supra*. Hence, the Examiner simply has not provided a legitimate motivation to combine the cited references in support of a *prima facie* case of obviousness.

An absence of a legitimate or supported motivation to combine Wan et al., Bridges, Kaplan, and Garshelis defeats a *prima facie* case of obviousness with respect to at least Claims 1-10. Furthermore, given the lack of a supported motivation to combine the respective references, any consideration regarding what the respective combination might or might not disclose is rendered moot.

Notwithstanding the lack of a supported motivation to combine/modify, the combination of Wan et al., Bridges, Kaplan, and Garshelis also fails to disclose or suggest ***all*** of the claim limitations of at least Claims 1-10. In particular, the combination of the references fails to disclose or suggest all of the limitations recited separately in either Applicant's base Claim 1 or Applicant's base Claim 6.

In particular, Wan et al. disclose a magnetoresistive sensor that may be used to determine "a temperature sensor reading and a magnetic sensor reading" (Wan et al., Abstract, lines 6-7), all such magnetoresistive sensors disclosed by Wan et al. require at least two pair of terminals to perform as disclosed. For example, consider the sensor configuration disclosed by Wan et al. in Figure 5 and described at Col. 7, lines 1-28. Wan et al. specifically disclose, "a first voltage measurement (Vout5) is taken across the sensing terminals 312 and 314, and provides a magnetic field sensor reading" (Wan et al., Col. 7, lines 7-9). Wan et al. further disclose, "a second voltage measurement (Vout6) is taken across the sensing terminals 310 and 314 ... the Vout6 value is employed to determine a temperature sensor reading" (Wan et al., Col. 7, lines 16-19). As such, Wan et al. neither discloses nor suggests that the dual-purpose sensor that measures temperature and current (or magnetic field) comprises, "a magnetoresistive current sensor having a single pair of terminals ... wherein ... the magnetoresistive current sensor produces both" measurements, as recited in Applicant's independent Claims 1 and 6.

Similarly, a strain gauge sensor 'R_G' disclosed by Bridges comprises three terminals. Multiplexing according to Bridges involves employing a "switching unit 10" to switch between pairs of the three terminals (i.e., wiring leads a, b and c) (see for example, Bridges, Col. 2, lines 40-65). In particular, according to Bridges, static strain is measured by connecting the "three wire leads a, b and c" to a "Wheatstone Bridge 12" through the "switching unit 10" (see Bridges, Col. 3, lines 22-37). Temperature measurements are made using only wire leads b and c, which are connected together to form a thermocouple. Thus, Bridges clearly discloses using or multiplexing at least two separate sets of terminals (i.e., a, b, and c or b and c) to make strain and temperature measurements. Similarly, both of Kaplan and Garshelis fail to disclose "a magnetoresistive current sensor having a single pair of terminals" that measures temperature and current (or magnetic field) using "the single pair of terminals", as recited in Applicant's independent Claims 1 and 6.

Moreover, none of the references discloses or suggests "a conductor adjacent to the magnetoresistive current sensor", as recited in Applicant's Claim 1. Furthermore, there is no disclosure or suggestion in any of the references of "the conductor being exposed to separate current conditions", as further recited in Claim 1. Additionally, neither Wan et al., Bridges, Kaplan, nor Garshelis disclose or suggest any or all of "wherein under the separate current conditions in the conductor the magnetoresistive current sensor produces both a temperature measurement in a vicinity of the sensor and a current measurement of a current flowing in the conductor

...", as is further recited in Claim 1. In short, whether considered separately or together, the references fail to disclose or suggest all of the claim limitations of Applicant's Claim 1.

Similarly, none of the references discloses or suggests "a current flowing adjacent to the magnetoresistive current sensor" or "separate current conditions of the adjacent current". Furthermore, none of the references discloses or suggests, "both a temperature measurement in a vicinity of the magnetoresistive current sensor and a current measurement of the current adjacent to the magnetoresistive current sensor are produced from separate resistance measurements made across the single pair of terminals", as further recited in Applicant's Claim 6. Hence, the references fail to disclose or suggest all of the limitations of Claim 6.

Therefore, the combination of Wan et al., Bridges, Kaplan, and Garshelis fails to disclose or suggest all of the limitations of each of Applicant's Claims 1 and 6, as further required by the courts for establishing and supporting *prima facie* obviousness. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

For the reasons set forth above, a *prima facie* case of obviousness by the combined teachings of Wan et al., Bridges, Kaplan, and Garshelis with respect to at least Claims 1 and 6 is defeated. Claims 2-5 are dependent from and include all of the limitations of independent Claim 1. Claims 7-10 are dependent from and include all of the limitations of independent Claim 6. For at least the same reasons given above for Claims 1 and 6, the *prima facie* case of obviousness of the dependent Claims 2-5 and 7-10 is similarly defeated. *In re Royka*, cited *supra*.

As discussed above, the Examiner's rejection under 35 U.S.C. 103(a) clearly lacks proper evidentiary support for establishing and maintaining a *prima facie* case of obviousness according to the courts. As such, the rejection of Claims 1-10 under 35 U.S.C. 103(a) by Wan et al., Bridges, Kaplan, and Garshelis should be withdrawn.

It is well established that, "the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability" and "[i]f examination at the initial stage ***does not*** produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent" (***emphasis*** added). *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Applicant reminds the Examiner that withdrawn Claim 11, drawn to a non-elected species, is dependent from generic Claim 6. As such, since a *prima facie* case of unpatentability has not been established with respect to generic Claim 6, Applicant respectfully requests rejoinder and consideration of Claim 11.

In summary, Claims 1-34 are pending and Claims 11-34 have been withdrawn. Claims 1-10 were rejected. Claims 1 and 6 are amended herein. In light of the discussion hereinabove, Applicant respectfully submits that at least Claims 1-10, as amended herein, are in condition for allowance. Applicant respectfully requests that Claims 1-10 be allowed and that Claim 11 be rejoined and considered, such that the application may be passed to issue at an early date.

Should the Examiner have any questions regarding the above, please contact the undersigned, J. Michael Johnson, Agent for Applicant, at telephone number (775) 849-3085.

Respectfully submitted,
RANDY K. RANNOW ET AL.

By: ______________________
J. Michael Johnson
Attorney/Agent for Applicant(s)
Registration No. 37,856

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office on the date shown below.

______________________ 12/9/05
J. Michael Johnson Date

* * * * *